وزارت تحصیلات عالی
پوهنتون رنا
پوهنځی کمپیوتر ساینس
دیپارتمنت انجینری نرم افزار
کورس پالیسی

Subject	Linux Administration
Teacher Name	Baitullah Malakhil
Phone Number	0788794000
Semester	7th
Subject Code	BIT-471
Number of Credit	3
Prerequisite Subject	Fundamentals of Networking
Learning Objective	1. Understanding the philosophy of open source and introduction to RHEL7 OS 2. Basic Linux commands using Bash shell of RHEL7 3. Working with files/ directories and users/groups account management 4. Working with RHEL7 firewall and setting up network connections 5. Setting up yum server 6. Installation and configuration of Samba server, vsFTP server, DHCP, DNS Server 7. Working with NTP and apache web server 8.
Teaching Methodology	Practical + Theory
Date	28 Sep 2023
Course Assessment	Mid Term 30% Assignments 10% Quiz 10% Final Term 50%
Reference Book	1. "Linux Administration Handbook" by Evi Nemeth, Garth Snyder, Trent R. Hein, and Ben Whaley 2. "UNIX and Linux System Administration Handbook" by Evi Nemeth, Garth Snyder, Trent R. Hein, Ben Whaley, and Dan Mackin 3. "Linux Bible" by Christopher Negus

جدول زمان بندی جلسات در طول سمستر				
Weeks	**Topics**	**Objectives**	**Teaching and Training Activities**	**Evaluation Method**
1	- Open source vs non-open source software - Philosophy of open source software - Open source software usage - Introduction to RHEL7 desktop environment	-At the end of the class the students will be able to relate the course with other pre-requisites. -The students will be able to familiarize with course contents. -The students will be able to explain the importance open source server OS and other application software	- AO: What the students think about open source software? - How it relates to other non-open source software subjects? - PPT presentation lectures - Close: what will the student be able to do after successfully completion of the course?	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
2	- RHEL7 installation - RHEL7 terminals - Bash shell - Executing commands using bash shell - Basic commands - RHEL7 file system hierarchy	At the end of the class the Students will be able to: - install any version of RHEL and/or Centos - work with basic bash shell commands - Know the Linux file system hierarchy	- AO: how to install RHEL7? - Bash shell and basic shell commands - ID: Lecture presentation - Close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
3	**Managing files** - Creating directories and files - Copying directories and files - Moving directories and files - Renaming directories and files - Deleting directories and files COMPUTER LAB (STUDENTS PRACTICE) - Visit to computer lab	-At the end of the class the students will be able with Linux files. - the students will be able to create, copy, move, delete files using bash shell commands	- AO: how can the students deal with files? - Lecture presentation and practical session at class - close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
4	**Getting Help in Linux & working with files using vim and gedit editors:** - Getting help using man command - Getting help using –help command - Getting help using pinfo command	- At the end of the class the students will be able to: - Learn how to get help from the Linux bash shell - User various Linux commands for local and online help	- AO: how does technical support and help assist us? - ID-PPT presentation lecture - Close: list what you have learn in this class?	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW

	- SoS Report - Viewing & creating files with cat command - Editing files with vim editor - Editing files with gedit editor	- At the end of the class the students will be able to explain: - How the vim editor works using CLI - Creating and editing files with vim	- AO: which Linux editor is effective and why? - ID-PPT presentation lecture - Close: list what you have learn in this class? -	
5	- local users and groups and Managing files & folder permission - Local users and groups in Linux - Creating users and groups - Deleting users and groups - Adding users into groups - User ID and Group ID in Linux - Resetting users password - Password policies - COMPUTER LAB (STUDENTS PRACTICE)	At the end of the class the students will be able to: - To manage local users and groups - Understand the GID and UID - Understand and deploy the users' password policies. - Understanding how to modify the file and directory permission policies -	- AO: what are the files which stores users and groups' info? How to deal with users - ID-PPT presentation lecture - Practical session in class - Close: summary - AO: what is the significance of password policies? How do they increase the security? - ID-PPT presentation lecture - Practical session in class - Close: list what you have learn in this class? - Assisting students in computer lab	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
6	**Managing files & folder permission** - Default file and directory permission - Setting file and directory permissions - Modifying files and directory permission Setting umask value - COMPUTER LAB (STUDENTS PRACTICE)	- Checking the default permission of files and folders - Changing the permissions of files and directories - Working with umask value -	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class - close: summarizing the lecture -	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
7	**Displaying Linux Process:** - Displaying Linux process using different commands - Working with Linux processes & Killing Linux Processes - COMPUTER LAB	- - Working with Linux processes. - Displaying and killing Linux processes	- AO: How to display and kill process in Linux? - Lecture presentation - Practical session in class - close: summarizing	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW

	(STUDENTS PRACTICE)		the lecture	
8	**Services & Daemons plus logs**: - Viewing Linux services - Starting, stopping, restarting, disabling, enabling services - Viewing Linux logs using different commands - COMPUTER LAB (STUDENTS PRACTICE) -	- Working with Linux logs and handling Linux Services - Starting and stopping services - Disable and enable services - Check the status of services	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class - close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
9	- Setting up yum server - Installing, uninstalling and updating software using yum - COMPUTER LAB (STUDENTS PRACTICE)	- Configuration of YUM server - List installed packages - List available packages - - Installation and uninstallation of packages	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class - close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
10	**Networking & SSH configuration** - Viewing the current IP add of the system - Setting dynamic IP address - Setting static IP, DNS server IP and default gateway - Editing the IP configuration file - COMPUTER LAB (STUDENTS PRACTICE)	- Viewing IP configuration - Static and dynamic IP configuration - Modifying the source file of IP configuration	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class - close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
11	- Different usage of the nmcli command - Setting hostname and viewing hostname configuration file - Configuring SSH - Access remote system using SSH	- Creating, deleting, modifying and viewing connections using nmcli - SSH configuration - Setting up hostnames	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
12	**Copying files between systems & controlling access to the files** - Copying files between systems using scp - Access Control List (ACL)	- Copying files between systems - ACL implementation - Implementation of the previous lesson practically in	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in	- feedback - Assignment - Reflection. - Formative: 1-5 question random

	- Securing files with ACL - Interpreting ACLs	computer lab by students - Practicing ACL and copying files between systems -	class close: summarizing the lecture	selection HW
13	**Managing SELinux security SElinux** - Changing SELinux modes - Changing SELinux Booleans **Managing & sharing files with NFS** - NFS installation - NFS configuration - Managing files with NFS - COMPUTER LAB (STUDENTS PRACTICE) -	- Understanding and working with SELinux - Turning SElinux ON and OFF - NFS Server installation and Configuration - NFS Client configuration -	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class - Close: summarizing the lecture -	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
14	**Managing Firewall & Network Port Security** - Checking Firewall status - Firewall zones - Allowing or blocking services in firewall - Allowing or blocking port numbers in firewall - Port-forward configuration - Creating rich rules in firewall - Assigning different NICs into different zones - Working with firewall service - COMPUTER LAB (STUDENTS PRACTICE) -	- Understanding firewall and blocking or allowing certain services or ports - Understanding and implementation of port forward and rich rules in Linux firewall - Working with panic mode - Performing IP based filtering - Services based filtering and Port based filtering at firewall -	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW
15	**Installation and management of DNS server** - What's DNS sever - DNS server installation - Editing DNS zone files - Adding DNS records into DNS zone files - DNS uninstallation **Apache Web Server:** - what is apache web server?	- Understanding the concept of DSN and how it works - Installation and Configuration of DNS server - Working with DNS configuration files - Understanding the concept and requirements of web	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW

	- Apache HTTPD - Installation - Uninstallation	server - Installation of Apache web server - Configuration of web server		
16	**DHCP Server:** - DHCP - DHCP server installation - DHCP Server Configuration - DHCP Server uninstallation - COMPUTER LAB (STUDENTS PRACTICE) -	- Understanding the concept of DHCP server and how it works - Installation of DHCP packages - Configuration and testing of DHCP server - Implementation of the previous lesson practically in computer lab by students - Practicing DHCP server	- Asking opening class 1-5 question by random selection - Lecture presentation - Practical session in class close: summarizing the lecture	- feedback - Assignment - Reflection. - Formative: 1-5 question random selection HW

قرار شرح فوق کورس پالیسی مضمون (Linux Administration) طبق کریکولم ترتیب وصحت است

امضاء استاد

تائیدی آمر دیپارتمنت

کورس پالیسی مضمون (Linux Administration) در جلسۀ شورای علمی پوهنځی مؤرخ 28 Sep 2023مورد بررسی قرار گرفت وبه اتفاق آراء تصویب گردید ودر کتاب جلسات به شمارۀ پروتوکول ( ) قید گردید.

نام وامضاء رئیس پوهنځی

مهر پوهنځی